PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	A pilot study of a neuroscience-based, harm minimisation program in schools & youth centres in Australia
AUTHORS	Debenham, Jennifer; Birrell, Louise; Askovic, Mina; Champion, Katrina; Newton, Nicola

VERSION 1 – REVIEW

REVIEWER	Chloe S Gordon Australian Catholic University and La Trobe University, Australia
REVIEW RETURNED	16-Aug-2019

GENERAL COMMENTS	Overview This study examines the feasibility of a neuroscience-based AOD prevention program for older adolescents. The authors describe the rationale for the program and provide a justification for focusing on older adolescents. They found that the program had good levels of acceptability amongst the adolescents and teachers included in the pilot study. The students also demonstrated a significant improvement in drug literacy levels from pre to post intervention. Minor comments - Very minor proofreading and grammatical edits needed in some places. - Can the validity and reliability of the measures used in the study be stated? - Is there scope for the three-open ended questions in the student evaluation to be qualitatively coded? For example, could the three favourite and three least favourite aspects of the program that were most commonly identified by the students be stated? The same applies to the extended response for the teacher evaluation. This may provide some qualitative themes that could be used to further refine the program and/or other programs. Overall comments - This is a well written paper with a clear focus and detailed description of the developed intervention. - The developed program is novel and clearly contributes to a gap in prevention science and AOD harm minimisation research. - It is positive that the program had good levels of acceptability amongst the students and teachers included in the sample, particularly given the older age of the adolescents where skepticism may be higher. - The authors were forthcoming in stating the study limitations. Overall, this manuscript was a pleasure to read and I look forward to seeing the results from the large scale RCT.

REVIEWER	Ahna Suleiman University of California Davis, USA
REVIEW RETURNED	30-Sep-2019

GENERAL COMMENTS	Thank you for this opportunity to review the manuscript The seductive allure of neuroscience-based drug education: A pilot with older adolescents. This manuscript presents the results of a pilot study exploring the feasibility of a neuroscience-based alcohol and other drugs (AODS) prevention program. The goal of this study was to assess the feasibility of large-scale implementation of this intervention across Australia. Although this manuscript seemed to offer an interesting approach on AODS prevention education for a specific age-group, the current manuscript fell short of adding to existing literature. Overall, the data indicated that the intervention was well-accepted by teachers and students and there were increases in knowledge and intentions around AODS. Unfortunately, due to some significant challenges in the design and execution of this study, the findings did not add to our understanding about whether this intervention would influence AODS use among 16-19 year olds as hypothesized. Major Concerns • In the introduction, the authors acknowledge that there have been marked declines in AODS use among adolescents in Australia and increased age of first use, but fail to offer any hypothesis or evidence on why this has occurred. They then make the argument for their tested intervention due to the fact that much of the AODS prevention education happens earlier in adolescence (12-15 years of age) and it does not have sustained behavioral effects. On the first point, one could hypothesize that one of the reasons for the later onset of AODS use is the early prevention education, but the authors fail to address this. There are compelling developmental reasons for conducting this prevention education during the earlier window might be more efficacious. Are the authors suggesting education in later adolescence should replace or augment the earlier prevention efforts? On the second point, almost all AODS prevention programs have limited long-term behavioral effects and this study did not look at the behavioral effects of their program – only approval by teachers and students. Are the authors predicting that their intervention will have stronger behavioral effects? If so, on what grounds? • The paragraph at the top of pg 4 is unclear. Lines 93-95 state that there is no state mandate for AODS education for students past the age of 16 but later in line 98 state that “programs targeting adolescents in the senior year of school are required”. Are they saying they should be required in line 98 or did they mean to indicate in lines 93-95 that it is currently required? • In the introduction, the authors make the argument that AODS prevention education is needed for older adolescents, 16-19 years old in their senior years of high school. They reiterate this again throughout the paper. The evidence presented here is results of a pilot they conducted with students in grade 10 who were 15-16. This seems like a mismatch and makes it unclear how to interpret the finding that this education should be presented to older adolescents. What was the motivation for this? How do they then extrapolate that this meets the needs of older adolescents? • The description of the sample is confusing. In the abstract, it states that 372 students “demonstrated a significant increase in

	drug literacy levels from pre to post intervention" but in the results on pg. 10 it says only 272 completed the baseline questionnaire and only 169 completed both the pre and post questionnaire. Clearly, the data is misrepresented as it seems at most, pre-post comparison analysis could only be on 169 responses. It is also very unclear why only 169 students completed both the pre and post test but 252 completed the evaluation questionnaire. Why did this happen? What were the differences between participants who completed the post-test and those who didn't and between those who completed the post-test and the evaluation questionnaire versus those who only did the evaluation questionnaire? The limitations section does not address this at all. • The workshop sizes ranged from 10-200. This wide variation has significant implications for the type of implementation. What group size was the intervention designed for? Did the effects vary based on the group size? One of the exemplar comments on pg. 12 for the favorite part of the program was "breaking into groups with the researchers". Does this happen in a room of 200 participants? This also has significant implications for the analysis of the data given that only 272 (or maybe 327 depending on the comment above) youth participated and 200 of them participated in 1 series of workshop. Was there any analysis that looked at the effects by cluster? Again this seems like a critical and overlooked limitation. • Students were required to put their names on the pre-post surveys eliminating all privacy in this research. Due to the sensitivity of this topic, it is very likely that this affected responses. How did the researchers control for/address this – particularly in a room of 200 students where a young person's responses could have easily been viewed by another student? Minor Concerns • The paper would benefit from a good proof-reading. There are extra letters, missing hyphens, spacing problems, etc., throughout the manuscript. • Please define all acronyms (e.g. SANE, MDMA, NSW, PDHPE) somewhere in the text. • Why was the sample so female dominated?

REVIEWER	Hamed Ekhtiari Laureate Institute for Brain Research, Tulsa, OK, US
REVIEW RETURNED	10-Oct-2019

GENERAL COMMENTS	Summary: In this manuscript, authors developed a neuroscience-based psychoeducation program as an alcohol and drug addiction preventive project used for adolescents. The program includes four main sections including information, skills, normative data and strategies aimed to promote subject's drug literacy. A feasibility study has been conducted among a group of year10 students and measurements have been taken from both students, teachers and health professionals in terms of relevant knowledge, skills and attitude as well as behavioral data. It is a well-written feasibility study with an important area of innovation/research. Positive points: • Introducing a creative neuroscience-based addiction prevention program which can be easily applied in the group setting • Engaging teachers beside of students in the feasibility study Concerns

	1. I'm not sure I like the name of the package, "Illicit Project", but probably it is not my call. 2. There are few abbreviations like PDHP, TIP, crossroad and few other terms that are not familiar for the international audience out of the Australian educational system. Authors should carefully explain them. 3. Having students' name on the forms (224-225) instead of coding the questionnaires is not a good idea especially when you are collecting such sensitive information. There are many other ways to match questionnaires pre and post. This can be addressed in the limitations. 4. The way that table 4 and 5 are generated should be clearly explained. Are they samples of the feedbacks? How they have been "cherry picked"? 5. Table 2 might be better visualized in bar charts with error bars. 6. There is an inconsistency between the reported sample size in abstract and method parts. Authors should provide a detailed "CONSORT-type" flowchart with number of subjects in each step and the sources of the subjects (line 332: "schools and youth centers") 7. Authors can introduce other neuroscience-based education ideas in addiction medicine in their introduction (Ekhtiari's paper "Neuroscience-informed psychoeducation for addiction medicine: A neurocognitive perspective" might be helpful). 8. The authors should address more details on their assessment instruments. 9. More details on the the validity and reliability of Drug Literacy Assessment will be helpful. 10. There is no clear information about the age of the participants (14-16 / 15-17 or 14 -19?) 11. There is no explanation for the time interval between the workshop sessions (3 sessions in a month?). 12. It seems the number of members attending meetings is very variable and this can affect the quality of the information provided and the final data. (206 " The workshop sizes ranged from 10-200 participants depending on…"). This should be addressed in the study limitations. 13. I couldn't find the teacher and Health Professional evaluation of the Illicit Project table.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Chloe S Gordon

Institution and Country: Australian Catholic University and La Trobe University, Australia

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

Overview
This study examines the feasibility of a neuroscience-based AOD prevention program for older adolescents. The authors describe the rationale for the program and provide a justification for focusing on older adolescents. They found that the program had good levels of acceptability amongst the adolescents and teachers included in the pilot study. The students also demonstrated a significant

improvement in drug literacy levels from pre to post intervention.

Minor comments
1. Very minor proofreading and grammatical edits needed in some places.
2. Can the validity and reliability of the measures used in the study be stated?

As outlined on page 10, the measures of drug literacy are based on items previously used in school-based trials (Teesson, Newton et al., 2017; Teesson et al., 2014) (see line 308).

“Adapted from previously utilised AOD knowledge and skill questionnaires (58), a twenty-item tool including both knowledge, attitudes, intentions and skills was custom built to assess drug literacy levels in study participants.”

Thank you for this recommendation, the Conbach’s alpha has been calculated to deduce reliability of the measures. The drug literacy scale demonstrated minimally acceptable reliability (α = is 0.67) and the student evaluation demonstrated respectable acceptability (α=0.87). The teacher evaluation questionnaire consists mostly of open-ended questions and it was deemed inappropriate to determine internal reliability. This is outlined in the manuscript on line 288 and line 312 respectably:

“The student evaluation scale demonstrated good reliability (α = 0.87).”
“The drug literacy measure demonstrated acceptable reliability (α = 0.67).”

3. Is there scope for the three-open ended questions in the student evaluation to be qualitatively coded? For example, could the three favourite and three least favourite aspects of the program that were most commonly identified by the students be stated? The same applies to the extended response for the teacher evaluation. This may provide some qualitative themes that could be used to further refine the program and/or other programs.

Thank you for the recommendation to improve the presentation of the results and future implementation of the program. In this case, the open-ended questions were selected based on the frequency at which the theme appeared, with quotes being presented when they represented over 10% of students’ comments. Please see further details of this on line 359.

“Further open-ended feedback was collected from students and the key themes (whereby at least 10% of students mentioned) are presented in Table 2.”

Due to the smaller sample size of the teachers and health professional group, we included all the feedback from this group, excluding duplication of the same theme – see line 396.

“Avoiding repetition, the key feedback points from teachers and health professionals are illustrated in Table 3.”

Overall comments
- This is a well written paper with a clear focus and detailed description of the developed intervention.
- The developed program is novel and clearly contributes to a gap in prevention science and AOD harm minimisation research.
- It is positive that the program had good levels of acceptability amongst the students and teachers included in the sample, particularly given the older age of the adolescents where skepticism may be higher.
- The authors were forthcoming in stating the study limitations. Overall, this manuscript was a pleasure to read and I look forward to seeing the results from the large scale RCT.

Reviewer: 2
Reviewer Name: Ahna Suleiman

Institution and Country: University of California Davis, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below
Thank you for this opportunity to review the manuscript The seductive allure of neuroscience-based drug education: A pilot with older adolescents. This manuscript presents the results of a pilot study exploring the feasibility of a neuroscience-based alcohol and other drugs (AODS) prevention program. The goal of this study was to assess the feasibility of large-scale implementation of this intervention across Australia. Although this manuscript seemed to offer an interesting approach on AODS prevention education for a specific age-group, the current manuscript fell short of adding to existing literature. Overall, the data indicated that the intervention was well-accepted by teachers and students and there were increases in knowledge and intentions around AODS. Unfortunately, due to some significant challenges in the design and execution of this study, the findings did not add to our understanding about whether this intervention would influence AODS use among 16-19 year olds as hypothesized.

Major Concerns
1. In the introduction, the authors acknowledge that there have been marked declines in AODS use among adolescents in Australia and increased age of first use, but fail to offer any hypothesis or evidence on why this has occurred. They then make the argument for their tested intervention due to the fact that much of the AODS prevention education happens earlier in adolescence (12-15 years of age) and it does not have sustained behavioral effects. On the first point, one could hypothesize that one of the reasons for the later onset of AODS use is the early prevention education, but the authors fail to address this. There are compelling developmental reasons for conducting this prevention education during the earlier window might be more efficacious. Are the authors suggesting education in later adolescence should replace or augment the earlier prevention efforts? On the second point, almost all AODS prevention programs have limited long-term behavioral effects and this study did not look at the behavioral effects of their program – only approval by teachers and students. Are the authors predicting that their intervention will have stronger behavioral effects? If so, on what grounds?

In commenting on the timing of interventions, we are not suggesting that education among older adolescence replaces existing evidence-based prevention efforts in junior high school years, rather, we were highlighting a prevention gap that exists in the senior high school years. Hereby, we suggest that older adolescent prevention programs could act as boosters to programs received in the earlier years. As highlighted by the reviewer, AOD prevention during early adolescence is crucial, in addition, we argue it is important to continue to support students and provide AOD education throughout mid to late adolescence as AOD use becomes more prevalent. We believe there is an unrivalled opportunity to leverage the final, formal opportunity to reach young people before they transition into adult life and that young people could benefit from added support in the senior years. We have clarified this in the manuscript on page 4 line 111:

"To leverage the final opportunity to universally reach young people in the school environment, supplementary prevention programs that target older adolescents in the senior years of school would be beneficial"

Whilst we are interested in the mechanism causing the global declines in AOD use, we are cautious

not to provide a simplistic view of this to readers. The international scope of the trends implies complex underlying mechanisms and researchers suggest a plethora of reasons for this [1-3]. Therefore, due to the complexity involved in speculating and the word limitations, we did not expand on the possible causes of the global declines as it's outside of the scope and not the focus of the current manuscript.

Finally, thank you for challenging our comment on the long-term behavioural effects of programs. We do not make any claims around the impact of this program on behaviour change nor do we wish to predict whether this program will stand the test of time. We hope through the amendments we have made that the scope of this project is defined as determining the feasibility of the program. Although we measured drug literacy in the intervention group to gain a preliminary understanding of the programs influence on knowledge and attitudes, due to the study design we appreciate that any results suggesting efficacy are inconclusive.

This has been made clear at several points in the manuscript outlined below.

In the Intro - Page 5, line 164:
"The primary aim of this study is to evaluate The Illicit Project, in terms of i) credibility, memorability and relevance for young people; ii) feasibility in schools, and iii) acceptability to teachers and health professionals. A secondary aim was to investigate preliminary effects of the program on drug literacy levels, which we conceptualise as a combination of knowledge, attitudes and skills required to minimise the harms of AOD (see Figure 1)."

In the methods and results - we have ensured that the presentation order of is consistent with the main aims of the study (placing drug literacy at the end of both these sections)

In the discussion – page 15, line 445 and line 449 respectively

"Furthermore, it aimed to gather preliminary data of the program's impact on students' drug literacy levels to inform a large-scale trial."

"These results provide preliminary support for the program's positive influence on drug literacy in young people."

In the limitations – page 18, line 521

"The drug literacy results in this pilot study must be interpreted with caution. The limited sample size and range of schools restricts the generalisability of results, the sample did not contain a control group and there is no long-term follow up to assess ongoing impact."

"Some students did not include identifying data on their questionnaire preventing their pre- and post-program questionnaires from being linked and included in the study, which contributes to the inconclusive results around the program's impact on drug literacy levels."

And finally, in the conclusion – page 18, line 550

"Next a large scale randomised-controlled trial of the program will be conducted to gain further insight into the potential of neuroscience to increase drug literacy and reduce AOD harms."

2. The paragraph at the top of pg 4 is unclear. Lines 93-95 state that there is no state mandate for AODS education for students past the age of 16 but later in line 98 state that "programs targeting adolescents in the senior year of school are required". Are they saying they should be required in line

98 or did they mean to indicate in lines 93-95 that it is currently required?

Thank you for the opportunity to provide further clarity in relation to this point..

We have made an amendment on page 4, line 111 to clarify which states:

“To leverage the final opportunity to universally reach young people in the school environment, supplementary prevention programs that target older adolescents in the senior years of school would be beneficial.”

3. In the introduction, the authors make the argument that AODS prevention education is needed for older adolescents, 16-19 years old in their senior years of high school. They reiterate this again throughout the paper. The evidence presented here is results of a pilot they conducted with students in grade 10 who were 15-16. This seems like a mismatch and makes it unclear how to interpret the finding that this education should be presented to older adolescents. What was the motivation for this? How do they then extrapolate that this meets the needs of older adolescents?

We thank the reviewer for their thoughtful reading of this paper and apologise for this confusion. We realise we made an error on page 8 under the Consent subheading. As stipulated in our ethics agreement, to be eligible for participation in the study, students needed to be aged 15-19years. Students from the youth centre and schools were aged 15-19years, however students in grade 10 (aged 15- 16) predominated the sample. The reason for this comes from logistics and scheduling limitations within the schools. At the time of recruitment, both of the schools were planning the schedule for their year 10 students (in Australia, there is often a flexible schedule for students in the final weeks of year 10 before they transition into year 11), hereby for these schools it worked to implement for their year 10 students. This is an important insight and has been included in the study on page 15, line 494.

“Moreover, it appears that within the Australian context, there is a strong feasibility case for the implementation of programs in grade 10, due to gaps in the curricula for students transitioning into grade 11. Further research with larger sample size would help to determine to what capacity grade 12 students can be engaged in external programs.”

We have also made note of this limitation on p16 line 523:

“The limited range of schools, variation in class size and age of students restricts the generalisability of results.”

We apologise for the inconsistency of age groups defined in the study and have sought to amend all of them to be accurate with our eligibility criteria and final sample size which is now reported as 252 for the evaluation questionnaire and 169 for the drug literacy score.

4. The description of the sample is confusing. In the abstract, it states that 372 students “demonstrated a significant increase in drug literacy levels from pre to post intervention” but in the results on pg. 10 it says only 272 completed the baseline questionnaire and only 169 completed both the pre and post questionnaire. Clearly, the data is misrepresented as it seems at most, pre-post comparison analysis could only be on 169 responses. It is also very unclear why only 169 students completed both the pre and post-test but 252 completed the evaluation questionnaire. Why did this happen? What were the differences between participants who completed the post-test and those who didn’t and between those who completed the post-test and the evaluation questionnaire versus those

who only did the evaluation questionnaire? The limitations section does not address this at all.

Thank you for your attention on sample size and reporting.

To be clear, 272 students completed the baseline questionnaire; 252 completed the post-program questionnaire and evaluation; 169 responses could be matched (pre- to post- program) and were included in the analysis of change in the drug literacy responses.

These differences were the result of the following factors:
• In order to complete the drug literacy questionnaire, students had to complete at least 10 of the 14 knowledge items – in some cases, students did not complete the questionnaire and could not be included.
• The program was implemented over different days of the week and over different weeks in the year (all within a month) and there are fluctuation in absentees between the first and final workshop – the drug literacy responses from students who did not complete the baseline and post program workshop could not be included. For example, at baseline there were 252 valid responses, however 83 of these were missing responses at post program.
• Some students failed to put their names on their drug literacy questionnaire, thereby we were unable to match the student responses from pre- to post- program (n=16).

We have now included this as a limitation on line 536 as below and we hope that our data presentation reads clearly to viewers.

“Some students (n=16) did not include identifying data on their questionnaire preventing their pre- and post- program questionnaires from being linked and included in the study, which contributes to the inconclusive results around the program’s impact on drug literacy levels.”

5. The workshop sizes ranged from 10-200. This wide variation has significant implications for the type of implementation. What group size was the intervention designed for? Did the effects vary based on the group size? One of the exemplar comments on pg. 12 for the favorite part of the program was “breaking into groups with the researchers”. Does this happen in a room of 200 participants? This also has significant implications for the analysis of the data given that only 272 (or maybe 327 depending on the comment above) youth participated and 200 of them participated in 1 series of workshop. Was there any analysis that looked at the effects by cluster? Again this seems like a critical and overlooked limitation.

Thank you for allowing us to provide additional clarity about the size of the groups.

We included a variation of settings to determine the feasibility of the program across different organisations. To be a successful program, it needs to cater to a range of school needs, which include class size and implementation environment. As you mention, the size of the participant group varied, however so did the format of presentation (as stipulated on page 10 line 249), whereby in the larger groups, the facilitators had microphones and presented on an elevated stage. In addition to this, the program has been designed to cater to different sized audience through increasing the number of facilitators delivering the program as audience size increases. However, wide variation in class size is likely to shape a student’s experience of the and we appreciate the variation it the current study was greater than expected. We have included a point on this in the limitations on line 522:

“The limited sample size, range of schools and variation in class sizes restricts the generalisability of results”

6. Students were required to put their names on the pre-post surveys eliminating all privacy in this research. Due to the sensitivity of this topic, it is very likely that this affected responses. How did the researchers control for/address this – particularly in a room of 200 students where a young person's responses could have easily been viewed by another student?

In regard to the sensitivity of the information, participants were reminded that their personal information would be stored confidentially, and their responses would only be viewed by the researchers and not their teachers. This is the common method when conducting self-report questionnaires with groups. The researchers chose to use a personal identifier such as the student's name, as the questionnaires only inquire about knowledge and attitudes and there are no personal AOD behaviour questions or sensitive items.

Around the point of students sharing answers, the questionnaires were conducted in a similar setting to examinations, whereby students completed the surveys independently in silence with a supervising teacher present. This point has also been noted in the limitations (see line 539).

"Future school-based research should employ other methods to link data whilst maintain confidentiality."

Minor Concerns
7. The paper would benefit from a good proof-reading. There are extra letters, missing hyphens, spacing problems, etc., throughout the manuscript.

The manuscript has been proof-read for these grammatical errors and amended

8. Please define all acronyms (e.g. SANE, MDMA, NSW, PDHPE) somewhere in the text.

All acronyms have been defined as requested.

SANE – this was defined on line 14, the first time it appeared.
MDMA – this has now been defined on line 264
NSW – this has now been defined on line 237
PDHPE – this acronym has now been defined line 359

9. Why was the sample so female dominated?

For the teachers and health professionals, 8 out of the 11 (73%) were female. This is likely to be a result of there being more female teachers than males in the Australian education space. This is not uncommon is similar studies in this area.

Reviewer: 3
Reviewer Name: Hamed Ekhtiari

Institution and Country: Laureate Institute for Brain Research, Tulsa, OK, US

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below
Summary:
In this manuscript, authors developed a neuroscience-based psychoeducation program as an alcohol and drug addiction preventive project used for adolescents. The program includes four main sections

including information, skills, normative data and strategies aimed to promote subject's drug literacy. A feasibility study has been conducted among a group of year10 students and measurements have been taken from both students, teachers and health professionals in terms of relevant knowledge, skills and attitude as well as behavioral data. It is a well-written feasibility study with an important area of innovation/research.

Positive points:
• Introducing a creative neuroscience-based addiction prevention program which can be easily applied in the group setting
• Engaging teachers beside of students in the feasibility study

Concerns
1. I'm not sure I like the name of the package, "Illicit Project", but probably it is not my call.

This has been raised before and we are likely to explore other options before a large scale-up.

2. There are few abbreviations like PDHP, TIP, crossroad and few other terms that are not familiar for the international audience out of the Australian educational system. Authors should carefully explain them.

Thank you for bringing this to our attention. We have now explained all acronyms in full to make this more accessible to an international audience as stated in response to point 8 with reviewer 2 above.

3. Having students' name on the forms (224-225) instead of coding the questionnaires is not a good idea especially when you are collecting such sensitive information. There are many other ways to match questionnaires pre and post. This can be addressed in the limitations.

We have addressed this in point 6 in the reviewer 2 section above.

4. The way that table 4 and 5 are generated should be clearly explained. Are they samples of the feedbacks? How they have been "cherry picked"?

Thank you for helping us to increase the interpretation of our results and usability of our for other researchers. In this case, we have addressed this with reviewer one in point 3 above.

5. Table 2 might be better visualized in bar charts with error bars.

We thank you for the opportunity to better visualise the data. We have presented the data in a bar chart with error bars.

Figure 2 Drug Literacy levels at pre- and post-test

*indicates $p<0.005$. Note t-test data only includes participant responses with linked pre- and post-test results (n=169).

6. There is an inconsistency between the reported sample size in abstract and method parts. Authors should provide a detailed "CONSORT-type" flowchart with number of subjects in each step and the

sources of the subjects (line 332: “schools and youth centers”)

Thank you for your attention on sample size and reporting. We regret to say that there was confusion around the number of students each school confirmed to be in the program and the actual numbers who attended.

Please refer to reviewer 2, point 4 above where we have addressed this point.

7. Authors can introduce other neuroscience-based education ideas in addiction medicine in their introduction (Ekhtiari’s paper “Neuroscience-informed psychoeducation for addiction medicine: A neurocognitive perspective” might be helpful).

Thank you for this thoughtful recommendation. We have included this relevant paper on page 5, line 152 in the manuscript however due to word limitations we cannot expand extensively.

1. The authors should address more details on their assessment instruments. More details on the validity and reliability of Drug Literacy Assessment will be helpful.

Thank you for raising this point, we have addressed your concern above with reviewer 1 under point 2.

2. There is no clear information about the age of the participants (14-16 / 15-17 or 14 -19?)

To be eligible for inclusion in the study, participants had to be aged 15-19years. Over the spread of youth centre and school student participants, participants fell on both upper and lower boundary of this age range. This has been further addressed above with reviewer 2 under point 3.

11. There is no explanation for the time interval between the workshop sessions (3 sessions in a month?).

To reduce attrition and drop out, we hoped to implement the entire program within a one-month interval. This also allows time for the student to reflect and recap on previous learnings. We have included this justification in the text on page 9, line 258 as follows:

“In this pilot, the workshops were delivered within a one-month timeframe to reduce attrition within the small sample, whilst allowing participants the time to reflect and recap on previous learnings”

12. It seems the number of members attending meetings is very variable and this can affect the quality of the information provided and the final data. (206 " The workshop sizes ranged from 10-200 participants depending on…"). This should be addressed in the study limitations.

Thank you for raising this important implementation point. We have now addressed this above with reviewer 2 under point 5.

13. I couldn't find the teacher and Health Professional evaluation of the Illicit Project table.

To avoid repetition we have not included a table of the teacher and health professional multiple choice responses as they are explained in the results.

VERSION 2 – REVIEW

REVIEWER	Chloe S Gordon Australian Catholic University and La Trobe University, Australia
REVIEW RETURNED	26-Nov-2019

GENERAL COMMENTS	All reviewer queries have been adequately addressed in the revision. I look forward to seeing the results from the large scale RCT.

REVIEWER	Ahna Suleiman Independent Consultant, USA
REVIEW RETURNED	18-Dec-2019

GENERAL COMMENTS	Overall, the revision helped to moderate the claims made in the paper and clarify the majority of the questions that I had. This paper still could use some copy editing. There are a lot of spacing issues throughout the text. I believe that it is a result of the editing but needs to be addressed. Nice job on the revision.